

INTERESTING CHALLENGE, CREATIVE SOLUTION

SLUICE GATE REFURBISHMENT, 2016

Gedawin Novo Controls Inc. designs, manufactures and markets control and protection systems for the small hydroelectric generation industry. While our core business is providing effective control systems and electrical equipment, our company can also offer solutions and services related to other aspects of the generating station. Our team will work with you to develop an appropriate solution and manage the overall project. We are “more than controls”.

THE CHALLENGE

The client came to Gedawin Novo Controls with an issue. The sluice gate on the dam was virtually unable to lift at critical times during the winter months due to severe ice buildup. As it was operated by chain hoists, it also would not return to the bottom position and seal under gravity to close it. The client wanted a cost effective solution that offered reliable operation in winter including the capability to remotely operate it via their existing SCADA system.



These pictures show the original chain hoist system (left) and the small, wooden shack (below) housing the electrical. Note the two pendant controls on the hoist structure that operated each hoist independently.



THE PLAN

Gedawin Novo Controls determined that the existing gate only needed minor repairs and the addition of internal heating to keep the ice off. Replacing the chain hoists with a new actuator system specifically designed for operation from a controller would allow the operator to raise and lower the gate from the same SCADA computer used to operate the turbines in the plant.



Dual screw stem actuator and structure



Heating loops installed inside gate



Boiler and pumps for 3 heating zones in gate



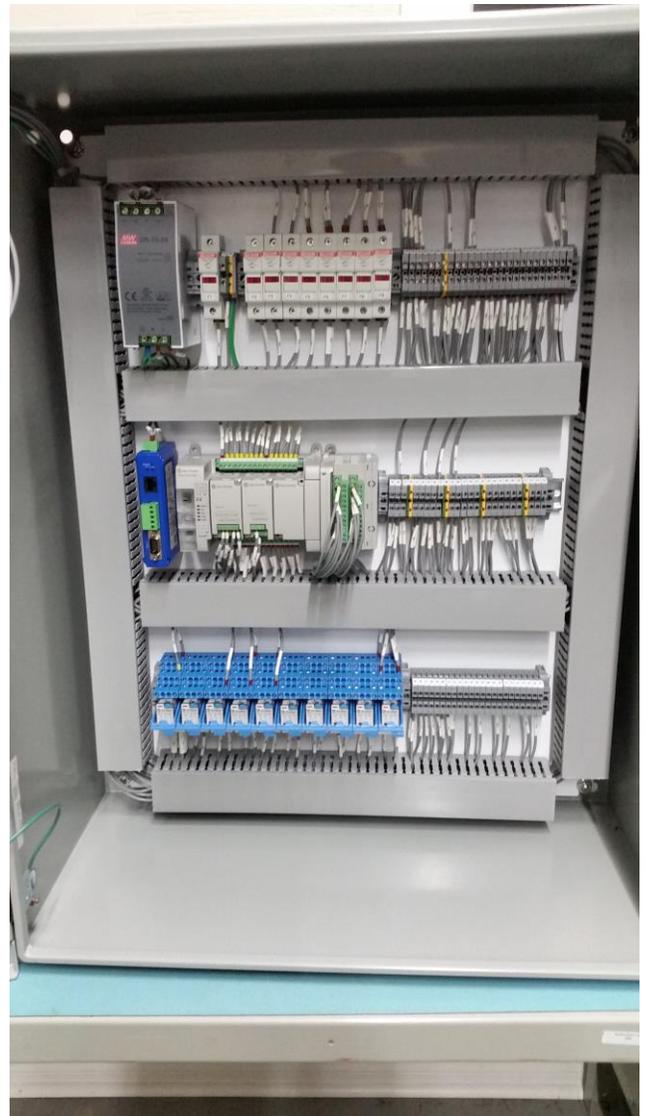
Flexible chain for glycol hoses

THE SOLUTION

A new dual screw stem actuator and structure provided the balanced lift as well as down pressure to ensure the gate sealed when closed. The heat source selected was a glycol based boiler system as it is efficient and also eliminated the need for significant upgrades to the station electrical system. A programmable logic controller (PLC) operates the gate actuator and controls the gate heating system which is all now enclosed in a new 8' x 8' outbuilding. The PLC communicates via Modbus TCP to the client SCADA system located in the station and allows for monitoring and control both from the station and remotely.



Sluice gate control cabinet



Sluice gate control cabinet interior



Sluice gate with new downstream skin



Outbuilding housing controls and boiler

THE RESULT

The commissioning tests and startup were successful and the system is ready for operation. The station operator is now looking forward to a winter free from spending hours out in the cold clearing ice from a frozen gate. The project management team at Gedawin Novo Controls kept the project moving along according to schedule and maintained a tight control of the budget.

Contact Gedawin Novo Controls to see how our creative and effective control solutions can improve and enhance your operations.

BIG POWER FOR SMALL HYDRO

Gedawin Novo Controls technology for small hydroelectric generation is currently installed on over 195 units across the globe in North and South America, Europe and Asia.